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EXAMINER
LELE, TANMAY S

ART UNIT	PAPER NUMBER
2681	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/034,082	SMITH ET AL.	
	Examiner	Art Unit	
	Tanmay S Lele	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14, 20, 21, 25-28, and 30 - 49* is/are rejected.

7)☒ Claim(s) *15 - 19, 22 - 24, 27, and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *28 February 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 28 February 2002 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Specification

2. The preliminary amendment submitted 30 April 02, has not been entered as, in many cases, it deletes lines and sections of the specification in mid-sentence or paragraph (for example "replace the paragraph at page 4, line 16," does not relate to a paragraph, but would delete a section mid-sentence). Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 –6, 8, 10 – 13, 25, 26, 35, 36, 38, 39, 41, and 43 - 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Gavrilovich (Gavrilovich, US Patent No 5,729,826).

Regarding claim 1, Gavrilovich teaches of a method of establishing a wireless communication path between a first device and a second device (as seen in Figure 1) the method comprising the steps of: automatically positioning a self-positioning wireless transceiver system

within communication range of a first device and a second device (as seen in Figure 1 and detailed starting column 2, line 61 and ending column 3, line 11); establishing communicative coupling between the self-positioning wireless transceiver system and the first device (column 3, lines 11 – 16); and establishing communicative coupling between the self-positioning wireless transceiver system and the second device while maintaining communicative coupling with the first device (as seen in Figure 1 and starting column 2, line 61 and ending column 3, line 11).

Regarding claim 2, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of wherein the self-positioning wireless transceiver system comprises a first self-positioning transceiver (column 4, lines 2 – 4).

Regarding claim 3, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of wherein the self-positioning wireless transceiver system comprises first and second self-positioning transceivers (column 4, lines 2 – 4 and column 9, lines 10 – 24).

Regarding claim 4, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of including a step of transmitting data from the first self-positioning transceiver to the second self-positioning transceiver via at least one of radio frequency, infrared frequency and ultrasonic frequency communication channels (column 3, lines 5 – 11).

Regarding claim 5, Gavrilovich teaches all the claimed limitations as recited in claim 4. Gavrilovich further teaches of wherein the step of transmitting data further includes transmitting self-positioning transceiver operational data via a control channel and transmitting communication data via a payload channel (as seen in Figures 6 and 7 and detailed in column 8, lines 29 – 43).

Regarding claim 6, Gavrilovich teaches all the claimed limitations as recited in claim 4. Gavrilovich further teaches of wherein the step of transmitting data further includes transmitting at least one of voice data, text date, image data, video data and audio data (column 5, lines 36 – 43).

Regarding claim 8, Gavrilovich teaches all the claimed limitations as recited in claim 2. Gavrilovich further teaches of wherein the first self-positioning transceiver further comprises a mobility mechanism (as seen in Figure 1 and detailed in column 4, lines 2 – 20).

Regarding claim 10, Gavrilovich teaches all the claimed limitations as recited in claim 8. Gavrilovich further teaches of wherein the mobility mechanism comprises one of a land-craft, aircraft and watercraft that is responsive to a wireless communication signal (as seen in Figure 1 and detailed in column 4, lines 2 – 20).

Regarding claim 11, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers, the method further including a step of deploying the plurality of self-positioning transceivers in a pre-defined configuration (column 4, lines 39 – 63).

Regarding claim 12, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers, the method further including a step of deploying the plurality of self-positioning transceivers in a pre-defined swarm configuration (column 4, lines 39 – 63; note that the BTS's are massed together along the roadside).

Regarding claim 13, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of wherein the self-positioning wireless transceiver system comprises

a plurality of self-positioning transceivers, the method further including a step of deploying the plurality of self-positioning transceivers to search for a signal transmitted by the second device in pre-defined searching pattern (column 4, lines 39 – 63 and column 7, line 56 –66).

Regarding claim 25, Gavrilovich teaches of a method of increasing the communication range of a first device, the method comprising the steps of providing a plurality of self-positioning transceivers, each of the plurality of self-positioning transceivers including a mobility mechanism adapted to enable each of the plurality of self-positioning transceivers to automatically position itself (starting column 2, line 63 and ending column 3, line 11 and column 4, lines 39 – 62); each of the plurality of self-positioning transceivers automatically positioning itself with respect to the first device (as seen in Figure 1 and detailed in column 5, lines 19 – 43); and establishing communicative coupling between each of the plurality of self-positioning transceivers and the first device (as seen in Figures 1 and 9 and in column 5, lines 19 – 43).

Regarding claim 26, Gavrilovich teaches all the claimed limitations as recited in claim 25. Gavrilovich further teaches of including the steps of each of a first subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of the first device (as seen in Figure 9 and detailed in column 8, lines 50 – 64); establishing communicative coupling between the first subset of the plurality of self-positioning transceivers and the first device (column 5, lines 19 – 43); each of a second subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of at least one of the first subset of the plurality of self-positioning transceivers (as seen in Figure 9 and column 9, lines 10 – 26; note that a soft handover is occurring); and establishing communicative coupling between each of the second subset of the plurality of self-positioning transceivers and

the first device via at least one of the first subset of the plurality of self-positioning transceivers (as seen in Figure 9 and detailed in column 8, lines 50 – 64 and column 9, lines 10 – 26).

Regarding claim 35, Gavrilovich teaches of a self-positioning transceiver adapted to provide communicatively coupling between a first device and a second device, the self-positioning transceiver system comprising: a transmitter (as seen in Figure 4 and column 6, lines 16 - 27); a receiver (as seen in Figure 4 and column 6, lines 16 - 27); a mobility mechanism adapted to carry the transmitter and the receiver (as seen in Figures 1 and 9 and column 4, lines 2 –20); and a processor communicatively coupled to the transmitter, the receiver and the mobility mechanism (as seen in Figure 4 and column 6, lines 16 – 27 and starting column 2, lines 62 and ending column 3, line 11), the processor being adapted to operate in accordance with a computer program embodied on a computer-readable medium, the computer program comprising: a first routine that directs processing of communication data received from the first device via the receiver (column 6, lines 16 – 27 and column 5, lines 35- 43); a second routine that directs transmission of the communication data received from the first device to the second device via the transmitter (column 6, lines 16 – 27 and column 5, lines 35- 43); and a third routine that issues a position command to the mobility mechanism based on the quality of a signal received by the receiver from the first device and based on the quality of a signal received by the receiver from the second device (starting column 2, lines 62 and ending column 3, line 11 and column 11, lines 5 – 26 and column 4, lines 39 –63).

Regarding claim 36, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches that wherein the combination of the transmitter and the receiver comprise a transceiver (column 6, lines 16 – 27).

Regarding claim 38, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of wherein the mobility mechanism comprises one of a land-craft, aircraft and watercraft that is responsive to a wireless communication signal (starting column 2, line 65 and ending column 3, line 11 and column 4, lines 2 – 20).

Regarding claim 39, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of wherein the transmitter is adapted to transmit communication data to one of a source device, a destination device and a neighboring self-positioning transceiver (column 5, lines 35 – 44; column 9, lines 10 – 24; and column 4,lines 39 –45).

Regarding claim 41, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of wherein the receiver is adapted to receive communication data to one of a source device, a destination device and a neighboring self-positioning transceiver (column 5, lines 35 – 44; column 9, lines 10 – 24; and column 4,lines 39 –45).

Regarding claim 43, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of comprising a fourth routine that issues the position command to the mobility mechanism in accordance with a pre-defined search pattern (column 4, lines 1 –6 and column 4, lines 39 – 63 and column 7, line 56 –66).

Regarding claim 44, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of wherein the transmitter transmits self-positioning transceiver operational data to a neighboring self-positioning transceiver via a control channel and communication packet data via a payload channel to one of a source device, a destination device and a neighboring self-positioning transceiver. (as seen in Figures 6 and 7 and detailed in column 8, lines 29 – 43).

Regarding claim 45, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of wherein the transmitter is adapted to transmit communication data via at least one of radio frequency, infrared frequency and ultrasonic frequency communication channels (column 3, lines 5 – 11).

Regarding claim 46, Gavrilovich teaches all the claimed limitations as recited in claim 35. Gavrilovich further teaches of including a fourth routine that directs a periodic monitoring of the communication link quality between the self-positioning transceiver and a neighboring self-positioning transceiver (column 5, lines 2 – 17 and column 10, lines 5 – 25 and column 11, lines 1 –12).

Regarding claim 47, Gavrilovich teaches all the claimed limitations as recited in claim 46. Gavrilovich further teaches including a fifth routine that maintains an aggregate communication link quality based on communication link quality data received from a plurality of self-positioning transceivers, the plurality of self-positioning transceivers being communicatively coupled to the self-positioning transceiver (column 5, lines 2 – 17 and column 10, lines 5 – 25 and column 11, lines 1 –12; note that either the mobile or repeater was interpreted as "self-positioning").

Regarding claim 48, Gavrilovich teaches all the claimed limitations as recited in claim 47. Gavrilovich further teaches including a sixth routine that issues a command to the mobility mechanism to reposition the self-positioning transceiver closer to the neighboring self-positioning transceiver if the communication link quality between the self-positioning transceiver and the neighboring self-positioning transceiver falls below the aggregate communication link quality by a pre-defined threshold (column 5, lines 2 – 17 and column 10, lines 5 – 25 and

column 11, lines 1 –12; note that either the mobile or repeater was interpreted as "self-positioning").

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7, 21, 40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (Gavrilovich, US Patent No 5,729,826).

Regarding claims 7 and 40, Gavrilovich teaches all the claimed limitations as recited in claims 1 and 35. Gavrilovich teaches of the self-positioning transceiver system (column 3, lines 12 –16). However, Gavrilovich does not explicitly show that the self-positioning transceiver system operates in accordance with one of Bluetooth, IEEE 802.11, IEEE 802.11 a, IEEE 802.11 b and IEEE 802.11 g industry specifications. Bluetooth, IEEE 802.11, IEEE 802.11 a, IEEE 802.11 b and IEEE 802.11 g industry specifications in a wireless system is a matter of system preference and is very well known in the art, thus the Examiner takes "Official Notice" as such. Therefore it would have been obvious to one skilled in the art, at the time of invention, to combine Gavrilovich with either the Bluetooth, IEEE 802.11, IEEE 802.11 a, IEEE 802.11 b and IEEE 802.11 g industry specifications, in order for the mobile to communicate with the base.

Regarding claim 21, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches of wherein the self-positioning wireless transceiver system comprises a plurality of communicatively coupled self-positioning transceivers further including the steps

of: detecting a termination of communicative coupling between the first device and the second device (starting column 2, line 62 and ending column 3, line 10).

Though Gavrilovich does not specifically teach of retrieving the plurality of self-positioning transceivers, it would have been obvious to one skilled in the art at the time of invention to retrieving the plurality of self-positioning transceivers (note that retrieving in this case would be the not moving state) with no communication occurring for the purposes of conserving mechanical and processor power when no communication is detected, as taught by Gavrilovich (note that starting column 2, line 62 and ending column 3, line 10 describes that repeaters move with respect to traffic and further details signal quality is the metric in column 11, lines 1 -25).

Regarding claim 42, Gavrilovich teaches all the claimed limitations as recited in claim 35. Though Gavrilovich does not specifically teach of further including a random access memory for maintaining self-positioning transceiver operational data, it would have been obvious to one skilled in the art at the time of invention to include RAM for the purpose of correlating the speed of the moving BTS with received signal quality, as taught by Gavrilovich (note that starting column 2, line 62 and ending column 3, line 10 describes that repeaters move with respect to traffic and further details signal quality is the metric in column 11, lines 1 -25).

7. Claim 9, 28, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (Gavrilovich, US Patent No 5,729,826) as applied to claims 8 and 25 above, and further in view of Gross et al. (Gross, US Patent No. 6,507,739).

Regarding claim 9, 28, and 37, Gavrilovich teaches all the claimed limitations as recited

in claims 8, 25, and 35. Gavrilovich does not specifically teach of wherein the mobility mechanism comprises one of a flying mobility mechanism, a hovering mobility mechanism, a swimming mobility mechanism, and a crawling mobility mechanism.

In a related art dealing with controlling cellular communications networks with airborne transceivers, Gross teaches of wherein the mobility mechanism comprises one of a flying mobility mechanism, a hovering mobility mechanism, a swimming mobility mechanism, and a crawling mobility mechanism (as seen in Figure 2 and detailed in column 4, lines 1 – 16 and lines 55 – 68).

It would have been obvious to one skilled in the art at the time of invention to have included into Gavrilovich's mobile repeater, Gross's airborne repeater, for the purposes of increasing capacity in a terrestrial network without adding additional BTS's, as taught by Gross.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (Gavrilovich, US Patent No 5,729,826) as applied to claim 1 above, and further in view of Uratani (Uratani, US Patent No. 5.850.593).

Regarding claim 14, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich further teaches wherein the self-positioning wireless transceiver system comprises first pluralities of self-positioning transceivers, the method further including the steps of employing the first plurality of self-positioning transceivers to communicatively couple the first device to the second device (as seen in Figure 1 and detailed starting column 2, lines 65 and ending column 4, lines 11).

Gavrilovich does not specifically teach of a second pluralities of self-positioning transceivers and employing the second plurality of self-positioning transceivers to create a

second communication path adapted to communicatively couple the first device to the second device.

In a related art dealing with mobile communication for a mobile station outside a service area of a base station, Uratani teaches of a second pluralities of self-positioning transceivers and employing the second plurality of self-positioning transceivers to create a second communication path adapted to communicatively couple the first device to the second device (as seen in Figure 1 and detailed in column 2, lines 7 – 29).

It would have been obvious to one skilled in the art at the time of invention to have included into Gavrilovich's mobile BTS method, Uratani's mobile repeater, for the purposes of extending services to a mobile unit normally outside the range of a BTS, as taught by Uratani.

9. Claims 20 and 30 – 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (Gavrilovich, US Patent No 5,729,826) as applied to claim 1 above, and further in view of Richetta et al. (Richetta, US Patent No. 5,499,237).

Regarding claim 20, Gavrilovich teaches all the claimed limitations as recited in claim 1. Gavrilovich does not specifically teach of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein the plurality of self-positioning transceivers are communicatively coupled to create a communication path between the first device and the second device, the method further including the steps of: detecting that the configuration of the plurality of communicatively coupled self-positioning transceivers is in a crossover configuration; identifying a relatively shorter communication path defined by a subset of the plurality of self-positioning transceivers; and issuing a command to the plurality of self-positioning transceivers that are not a member of the subset to communicatively decouple

themselves from the first device, the second device and the subset of the plurality of self-positioning transceivers.

In an analogous art dealing with satellite repeaters, Richetta teaches of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein the plurality of self-positioning transceivers are communicatively coupled to create a communication path between the first device and the second device, the method further including the steps of: detecting that the configuration of the plurality of communicatively coupled self-positioning transceivers is in a crossover configuration (column 4, lines 7 –34 and column 5, lines 15 – 30); identifying a relatively shorter communication path defined by a subset of the plurality of self-positioning transceivers (column 9, lines 4 – 30); and issuing a command to the plurality of self-positioning transceivers that are not a member of the subset to communicatively decouple themselves from the first device, the second device and the subset of the plurality of self-positioning transceivers (column 6, lines 1 – 2 and starting column 6 line 58 and ending column 7 line 7; note that a gateway and base station can perform the same functions, as is known in the art).

It would have been obvious to one skilled in the art at the time of invention to have included into Gavrilovich' mobile repeater, Richetta's hopping table, for the purposes of reducing transit time of the data packet through the system, as taught by Richetta.

Regarding claim 30, Gavrilovich teaches all the claimed limitations as recited in claim 25. Gavrilovich does not specifically teach of wherein the plurality of self-positioning transceivers includes a first subset of self-positioning transceivers and the method further

includes the step of communicatively coupling the first device to a second device via the first subset of communicatively coupled self-positioning transceivers.

In an analogous art dealing with satellite repeaters, Richetta teaches of wherein the plurality of self-positioning transceivers includes a first subset of self-positioning transceivers (as seen in Figure 1 and column 5, lines 15 – 30) and the method further includes the step of communicatively coupling the first device to a second device via the first subset of communicatively coupled self-positioning transceivers (column 6, lines 1 and 2 and column 4, lines 35 –49).

It would have been obvious to one skilled in the art at the time of invention to have included into Gavrilovich's mobile repeater, Richetta's hopping table, for the purposes of reducing transit time of the data packet through the system, as taught by Richetta.

Regarding claim 31, Gavrilovich in view of Richetta teach all the claimed limitations as recited in claim 30. Richetta further teaches of wherein the plurality of self-positioning transceivers includes a second subset of self-positioning transceivers (as seen in Figure 1 and column 5, lines 15 – 30) and the method further includes the step of creating a first alternate communication path between the first device and the second device via the second subset of communicatively coupled self-positioning transceivers (column 6, lines 1 and 2 and column 4, lines 35 –49).

Regarding claim 32, Gavrilovich in view of Richetta, teach all the claimed limitations as recited in claim 31. Richetta further teaches of wherein if at least one of the first subset of self-positioning transceivers experiences a malfunction, establishing communicative coupling

between the first device and the second device via the first alternate communication path (as seen in Figure 5, 7, and 8 and column 3, lines 39 – 60).

Regarding claim 33, Gavrilovich in view of Richetta teach all the claimed limitations as recited in claim 30. Gavrilovich further teaches of wherein the method further includes the step of if the strength of a communication signal received by one of the first and second devices falls below a predefined threshold (column 10, lines 5 –25 and column 11, lines 1 – 25) and Richetta further teaches of the second subset of the communicatively coupled self-positioning transceivers automatically positioning themselves to maintain communicative coupling between the first device and the second device (as seen in Figure 5, 7, and 8 and column 3, lines 39 – 60).

Regarding claim 34, Gavrilovich in view of Richetta teach all the claimed limitations as recited in claim 33. Richetta further teaches of wherein the plurality of self-positioning transceivers includes a third subset of self-positioning transceivers and the method further includes the step of the third subset of the communicatively coupled self positioning transceivers automatically positioning themselves to create a second alternate communication path between the first device and the second device (as seen in Figure 5, 7, and 8 and column 3, lines 39 – 60 and column 5, lines 46 - 56).

Allowable Subject Matter

10. Claims 15 – 19, 22 – 24, 27, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 15, the present invention is of wherein the self-positioning

wireless transceiver system comprises first, second and third self-positioning transceivers, the method further including the step of the second self-positioning transceiver automatically positioning itself with respect to the first and third self-positioning transceivers such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the third self-positioning transceiver are approximately equal. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) teaches of wherein the self-positioning wireless transceiver system comprises first, and second self-positioning transceivers, but alone or in combination with other prior art, does not fairly teach the method further including the step of the second self-positioning transceiver automatically positioning itself with respect to the first and third self-positioning transceivers such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the third self-positioning transceiver are approximately equal.

Regarding claim 16, the present invention is of wherein the self-positioning wireless transceiver system comprises first and second self-positioning transceivers, the method further including the steps of positioning the first self-positioning transceiver positioning within communication range of the first device; establishing communicative coupling between the first transceiver and the first device; if the signal received from the second device is less than a first threshold, issuing a request to a second self-positioning transceiver for support; positioning the second self-positioning transceiver within communication range of the first self-positioning transceiver and the first device; establishing communicative coupling between the second self-positioning transceiver and the first device; establishing communicative coupling between the

second self-positioning transceiver and the first self-positioning transceiver; positioning the first self-positioning transceiver a predefined incremental distance toward the second device; and positioning the second self-positioning transceiver with respect to the first self-positioning transceiver and with respect to the first device such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the first device are approximately equal. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) teaches of wherein the self-positioning wireless transceiver system comprises first and second self-positioning transceivers, the method further including the steps of positioning the first self-positioning transceiver positioning within communication range of the first device; establishing communicative coupling between the first transceiver and the first device; positioning the second self-positioning transceiver within communication range of the first self-positioning transceiver and the first device; and establishing communicative coupling between the second self-positioning transceiver and the first device; establishing communicative coupling between the second self-positioning transceiver and the first self-positioning transceiver, but alone or in combination with other prior art, does not fairly teach if the signal received from the second device is less than a first threshold, issuing a request to a second self-positioning transceiver for support; positioning the first self-positioning transceiver a predefined incremental distance toward the second device; and positioning the second self-positioning transceiver with respect to the first self-positioning transceiver and with respect to the first device such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the first device are approximately equal.

Claim 17 is allowed as being dependent on dependent claim 16.

Regarding claim 18, the present invention is of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein a subset of the plurality of self-positioning transceivers are communicatively coupled to create a communication link from the first device to the second device, the method further including the steps of: detecting a movement of the first device relative to the position of the second device; positioning the first self-positioning transceiver of the subset of self-positioning transceivers repositioning to remain within communication range of the first device; repositioning each of the subset of self-positioning transceivers communicatively coupling the first self-positioning transceiver to the second device with respect to a neighboring self-positioning transceiver such that the quality of each communication signal received by each of the subset of self-positioning transceivers from a neighboring self-positioning transceiver are approximately equal; if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is less than a First threshold, issuing a request to a second self-positioning transceiver for support and if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is greater than 'i second threshold, issuing a request to one of the subset of self-positioning transceivers to communicatively decouple itself from the first device, the second device and the other self-positioning transceivers of the subset of self-positioning transceivers. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) teaches of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein a subset of the plurality of self-positioning transceivers are communicatively coupled to create a

communication link from the first device to the second device, the method further including the steps of: detecting a movement of the first device relative to the position of the second device; positioning the first self-positioning transceiver of the subset of self-positioning transceivers repositioning to remain within communication range of the first device; and if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is greater than the second threshold, issuing a request to one of the subset of self-positioning transceivers to communicatively decouple itself from the first device, the second device and the other self-positioning transceivers of the subset of self-positioning transceivers, but alone or in combination with other prior art, does not fairly teach repositioning each of the subset of self-positioning transceivers communicatively coupling the first self-positioning transceiver to the second device with respect to a neighboring self-positioning transceiver such that the quality of each communication signal received by each of the subset of self-positioning transceivers from a neighboring self-positioning transceiver are approximately equal; if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is less than a First threshold, issuing a request to a second self-positioning transceiver for support.

Claim 19 is allowed as being dependent on dependent claim 18.

Regarding claim 22, the present invention is of further including the steps of (i) determining that a predetermined period has passed without the detection of a need to form a communication link between the first device and the second device; (ii) initiating a search for a homing signal generated from a home location; (iii) searching for the homing signal; (iv) if the homing signal is detected, following the homing signal to the home location; (v) if the homing

signal cannot be detected, at least one of the plurality of self-positioning transceivers positioning itself an incremental distance away from a reference position to search for the homing signal; and (vi) repeat steps (iii) through (v) until the homing signal is detected. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) alone or in combination with other prior art, does not fairly teach of further including the steps of (i) determining that a predetermined period has passed without the detection of a need to form a communication link between the first device and the second device; (ii) initiating a search for a homing signal generated from a home location; (iii) searching for the homing signal; (iv) if the homing signal is detected, following the homing signal to the home location; (v) if the homing signal cannot be detected, at least one of the plurality of self-positioning transceivers positioning itself an incremental distance away from a reference position to search for the homing signal; and (vi) repeat steps (iii) through (v) until the homing signal is detected.

Claim 23 is allowed as being dependent on dependent claim 22.

Regarding claim 24, the present invention is of 24. The method of claim 21, further including the steps of (i) issuing a retrieve command to the plurality of self-positioning transceivers; (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device; (v) repeat steps (ii) through (iv) until the plurality of self-positioning transceivers have been communicatively decoupled from the first device. The closest prior art, Gavrilovich

(Gavrilovich, US Patent No 5,729,826) teaches of (i) issuing a retrieve command to the plurality of self-positioning transceivers, but alone or in combination with other prior art, does not fairly teach (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device; (v) repeat steps (ii) through (iv) until the plurality of self-positioning transceivers have been communicatively decoupled from the first device.

Regarding claim 27, the present invention is of wherein the step of the first subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of one of the first device further includes the steps of a first self-positioning transceiver receiving a first communication signal directly from a first neighboring self-positioning transceiver; the first self-positioning transceiver receiving a second communication signal directly from a second neighboring self-positioning transceiver; the first self-positioning transceiver automatically positioning itself with respect to the first and second neighboring self-positioning transceivers such that the quality of the communication signals received from the first and second neighboring self-positioning transceivers are approximately equal. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) teaches of wherein the step of the first subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of one of the first device further includes the steps of a first self-positioning transceiver receiving a first communication signal directly from a first neighboring

self-positioning transceiver; the first self-positioning transceiver receiving a second communication signal directly from a second neighboring self-positioning transceiver, but alone or in combination with other prior art, does not fairly teach the first self-positioning transceiver receiving a second communication signal directly from a second neighboring self-positioning transceiver; the first self-positioning transceiver automatically positioning itself with respect to the first and second neighboring self-positioning transceivers such that the quality of the communication signals received from the first and second neighboring self-positioning transceivers are approximately equal.

Regarding claim 29, the present invention is of wherein the step of providing a plurality of self-positioning transceivers further comprises providing a plurality of self-positioning transceivers including a mobility mechanism comprising a micro-mechanical flying insect robot. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) alone or in combination with other prior art, does not fairly teach of wherein the step of providing a plurality of self-positioning transceivers further comprises providing a plurality of self-positioning transceivers including a mobility mechanism comprising a micro-mechanical flying insect robot.

Regarding claim 49, the present invention is of further including a sixth routine that issues a command to the mobility mechanism to reposition the self positioning transceiver further away from the neighboring self-positioning transceiver if the communication link quality between the self-positioning transceiver and the neighboring self-positioning transceiver exceeds the aggregate communication link quality by a pre-defined threshold. The closest prior art, Gavrilovich (Gavrilovich, US Patent No 5,729,826) alone or in combination with other prior art, does not fairly teach of of further including a sixth routine that issues a command to the mobility

mechanism to reposition the self positioning transceiver further away from the neighboring self-positioning transceiver if the communication link quality between the self-positioning transceiver and the neighboring self-positioning transceiver exceeds the aggregate communication link quality by a pre-defined threshold.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (703) 305-4778. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Tanmay S Lele
Examiner
Art Unit 2681

tsl
March 3, 2003

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